REMARKS

The drawing correction issue has been addressed.

The rejection of Claims 35, 37, 42, 43, 57 and 58 as being anticipated by DE ‘592 under 35 USC § 102(b), and the rejection of Claims 35, 51-54 and 58 as being unpatentable over DE ‘592 in view of Nagaishi or Face, of Claim 55 as being unpatentable over DE ‘592 in view of Naimichi [sic, Nagaishi] and Sung, of Claim 44 as being unpatentable over DE ‘592 in view of JP ‘568, of Claim 56 as being unpatentable over DE ‘592 in view of Tateshi or Moslehi, of Claims 38-41 as being unpatentable over DE ‘592 in view of Yamanishi, of Claims 35-38, 42-44, 46-50 and 56-58 as being unpatentable over JP ‘568 in view of Yamanishi, and of Claims 35, 37-43, 45, 57 and 58 as being unpatentable over Yamanishi “in view of the description of the invention of Yamanishi,” all under 35 USC § 103(a), are traversed.

Reconsideration of each of these rejections is requested. DE ‘592, by itself or in purported combination, neither anticipates or even suggests the subject matter of amended independent Claims 35 and 58 as well as the claims dependent thereon. The same can be said with regard to JP ‘568 and/or Yamanishi. The hypothetical and unnecessarily overlapping rejections are based upon impermissible hindsight. *Prima facie* cases of anticipation and obviousness based upon substantial record evidence have not been established notwithstanding the length of the Office Action.

DE ‘592 is directed to high temperature superconductive material deposition in which deposition of amorphous silicon oxide coating is avoided. A magnetron sputter source is used which forms a plasma (see numeral 11 in

Fig. 1). DE '592 teaches or suggests nothing whatsoever about the extent of the substrate to be superconductively coated. Fig. 1 merely discloses the distribution of the plasma and not the magnetic field with polarity direction as suggested in the Office Action. How the magnetic field is applied to the magnetron source to result in the plasma distribution 11 is left unstated. Nor does DE '592 concern itself with the substrate diameter.

Applicants incorporate by reference their previous comments regarding the Yamanishi document. Suffice it to say here that this reference does not teach the claimed magnetron magnetic field polarity. Attention is directed to Fig. 3a of that document as evidence of this fact. At most, Fig. 2 of Yamanishi shows two inclined targets and a rotating substrate carrier. Yamanishi is not directed to a single magnetron source arrangement. Nor would it have been obvious from Fig. 2 of Yamanishi in purported combination with Yamanishi's description of prior art seen in Fig. 12 to reduce the chamber so as to have only one single magnetron source and to rotate the claimed substrate. Yamanishi teaches rotation only when applying the specified twin configuration sputtering sources. When applying sputtering sources as claimed, the prior art of Fig. 12 of Yamanishi does not teach rotation. Both embodiments (Figs. 2 and 12) of Yamanishi utilize the twin sputtering source configuration and sputtering symmetry from the two sputtering sources with respect to the axis of the substrate. One of ordinary skill would not have been led to eliminate one of the sputtering sources, thereby making the sputtering arrangement, seen from the center of the substrate, most asymmetric and to rotate the substrate to

nevertheless achieve very high thickness distribution uniformity. This would have destroyed the very teachings of Yamanishi.

Nagaishi teaches only forming a superconducting layer onto a large substrate surface. The layer is deposited by using a laser beam, <u>not</u> by sputtering. As a "large" surface substrate, only a 20 mm square plate (Examples 1 and 3), a disk having 15 mm diameter (col. 11, line 38), and a silicon wafer having a size of 76 mm in diameter (col. 12, line 52) are disclosed. That is, prior to the present invention, or at least at the time of DE '592, the record evidence teaches that a skilled artisan in this art would have considered a large surface substrate to be at most about 76 mm in diameter, i.e., about 50 cm^2.

Face is directed to high temperature superconducting layer deposition. It suggested that high quality films could only be formed on a region of about 2 cm^2 by laser deposition. Face sought to provide a technique for depositing high-temperature superconducting oxide films on surface areas which exceed 6 cm^2. Only areas of about 6 cm^2 are coated in the examples; that is, the Face disclosure does not actually support or teach that surface areas of 176 cm^2 and more could be coated by superconducting layers, given that only surface areas of 6.35 cm^2 (Example 1) and 7.62 cm^2 (Examples 2 and 3). Moreover, the coating technique used by Face is sputtering with an oblique substrate/target axis.

DE '592, Nagaishi and Face are all directed to superconductive layer deposition. DE '592 is totally silent about the extent of surface area coated by a superconductive layer. Face theoretically enlarges the coated surface area but actually teaches an enlarged surface area to be 76 mm in diameter, assuming areas of 176 cm^2 being also coatable with such superconductive layers. Face also

uses oblique axis angle sputtering. Nagaishi does not add anything because it teaches only relatively small surface areas to be superconductive coated.

The cumulative prior art teaches, at most, superconductive layer deposition on only relatively small surface substrate areas by oblique angle sputtering. DE '592 teaches that the angle of axes is not critical and may be between 0 and 90°. In contrast, the claimed invention is directed to substrates of at least 160 mm (about 200 cm^2) diameter. This is substantially larger than diameters contemplated in the cited prior art which addressed itself to superconducting layer deposition restricted with respect to surface areas because of perceived limitations in superconductive layer deposition. It was thus clearly not obvious to apply an oblique angle sputtering technique to substrates with a diameter of at least 160 mm as taught by superconductive layer deposition techniques, but only for significantly smaller surface areas. No motivation existed for the person of ordinary skill, when looking for a solution for coating very large substrate surfaces with an improved coating thickness distribution, to employ superconductive techniques, where only considerably smaller surfaces could be superconductively coated.

The other secondary prior art is of no aid in making a *prima facie* case of obviousness. Sung teaches a large area <u>laser</u> deposition technique. Sung never considered the use of superconductive layer deposition. JP '568 teaches sputter deposition of a superconducting film but teaches nothing about the extent of substrate areas to be coated. Tateishi does not involve oblique angle sputtering at all, as is also true with respect to Moslehi.

Early and favorable action is now earnestly solicited. Given the number of issues raised in the Office Action, however, the Examiner is requested to contact the undersigned to arrange a personal interview before the issuance of any further written communication should any issues or questions remain.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #622/48561).

Respectfully submitted,

July 30, 2003

Vincent J Sunderdick

Vincent J. Sunderdick
Registration No. 29,004
for James F. McKeown
Registration No. 25,406

CROWELL & MORING, LLP
P.O. Box 14300
Washington, DC 20044-4300
Telephone No.: (202) 624-2500
Facsimile No.: (202) 628-8844

JFM/acd
080310.48561US